

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 30 AUG 2004

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Applicant's or agent's file reference <b>27503-18</b>	<b>FOR FURTHER ACTION</b>		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. <b>PCT/US03/29715</b>	International filing date (day/month/year) <b>18 September 2003 (18.09.2003)</b>	Priority date (day/month/year) <b>18 September 2002 (18.09.2002)</b>	
International Patent Classification (IPC) or national classification and IPC <b>IPC(7): C08F 08/30 and US Cl.: 524/501,507,818,832; 525/123</b>			
Applicant <b>VALSPAR SOURCING, INC.</b>			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 3 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand <b>08 March 2004 (08.03.2004)</b>	Date of completion of this report <b>12 August 2004 (12.08.2004)</b>
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer  Rachel F. Gorr Telephone No. 571-272-1700

Form PCT/IPEA/409 (cover sheet)(July 1998)

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US03/29715

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed.
- ☒ the description:  
 pages 1-25 as originally filed  
 pages NONE filed with the demand  
 pages NONE filed with the letter of \_\_\_\_\_.
- ☒ the claims:  
 pages NONE as originally filed  
 pages NONE as amended (together with any statement) under Article 19  
 pages NONE filed with the demand  
 pages 26-29 filed with the letter of 06 July 2004 (06.07.2004).
- ☐ the drawings:  
 pages NONE as originally filed  
 pages NONE filed with the demand  
 pages NONE filed with the letter of \_\_\_\_\_.
- ☐ the sequence listing part of the description:  
 pages NONE as originally filed  
 pages NONE filed with the demand  
 pages NONE filed with the letter of \_\_\_\_\_.

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE
- ☒ the claims, Nos. NONE
- ☒ the drawings, sheets/fig NONE

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/US03/29715

## V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. STATEMENT

Novelty (N)	Claims <u>14-16,20-23</u>	YES
	Claims <u>1-13,17-19,24-27</u>	NO
Inventive Step (IS)	Claims <u>14-16,20-23</u>	YES
	Claims <u>1-13,17-19,24-27</u>	NO
Industrial Applicability (IA)	Claims <u>1-27</u>	YES
	Claims <u>NONE</u>	NO

### 2. CITATIONS AND EXPLANATIONS

Claims 1-13, 17-19 and 24-27 lack novelty under PCT Article 33(2) as being anticipated by BONTINCK. BONTINCK discloses aqueous coating compositions comprising about 50 wt% of a hydrazine terminated polyurethane and about 50 wt. % of an acetoacetoxy functional group containing polyacrylate. See example 33, Table III. He shows that the composition self crosslinks at ambient temperature (bottom column 2). The applicant argues that the polyurethane of example 6 used in example 33 doesn't have hydrazide termination. Example 6 is made at an amine/isocyanate equivalent ratio of 1.11/1, which means that the polyurethane would have some hydrazide termination.

Claims 14-16 and 20-23 meet the criteria of PCT Article 33 (2)(3) because none of the prior art shows or suggests the coating composition of BONTINCK with an additional crosslinker.

Claims 1-27 meet the criteria of PCT Article 33(4) because the coatings are useful for industrial and domestic purposes.

## REPLACEMENT SHEET

What is claimed is:

1. A composition, comprising:  
a vinyl addition latex polymer having a first crosslinkable functional group;  
a polyurethane dispersion having a second crosslinkable functional end group  
comprising an acetoacetoxyl, diacetone, amine or hydrazide group or combination thereof;  
and  
an optional crosslinker,  
wherein the composition is in the form of a waterborne coating composition, and wherein the first crosslinkable functional group of the vinyl addition latex polymer and the second crosslinkable functional end group of the polyurethane dispersion self-crosslink at low temperature upon coalescence.
2. The composition of claim 1, wherein the waterborne coating composition is essentially formaldehyde free.
3. The composition of claim 1, wherein the first crosslinkable functional group of the vinyl addition polymer is reactive.
4. The composition of claim 1, wherein the first crosslinkable functional group and ~~second crosslinkable functional end group are selected from the group consisting of:~~  
comprises an acetoacetoxyl, diacetone, amine, hydrazide, and combinations thereof amine or hydrazide group or combination thereof.
5. The composition of claim 1, wherein the first crosslinkable functional group is ~~selected from~~ comprises an acetoacetoxyl groups group, diacetone groups, and combinations group or combination thereof, and wherein the second crosslinkable functional end group is ~~selected from the group consisting of:~~ comprises an amine groups group, dihydrazide groups, and combinations group or combination thereof.
6. The composition of claim 1, wherein the vinyl addition latex polymer is selected from the group consisting of: acrylates, methacrylates, styrenes, and vinyl monomers.

## REPLACEMENT SHEET

7. The composition of claim 1, wherein the acid number of the vinyl addition latex polymer is between about 1 and 90.
8. The composition of claim 1, wherein the vinyl addition latex polymer has a glass transition temperature of between about -70 and 130 °C.
9. The composition of claim 1, wherein the vinyl addition latex polymer comprises between about 10 and 90 weight percent of the coating composition.
10. The composition of claim 1, wherein the polyurethane dispersion comprises between about 10 and 90 by weight of the coating composition.
11. The composition of claim 1, wherein the polyurethane dispersion is formed from the reaction product of a diisocyanate(s) and a polyol(s).
12. The composition of claim 12, wherein the diisocyanate includes aliphatic and aromatic diisocyanates.
13. The composition of claim 12, wherein the polyol includes polyester, polyether, and polycarbonate polyols.
14. ~~The A~~ composition of ~~claim 1~~ comprising:  
a vinyl addition latex polymer having a first crosslinkable functional group; and  
a polyurethane dispersion having a second crosslinkable functional end group,  
wherein the composition is in the form of a waterborne coating composition, the first crosslinkable functional group of the vinyl addition latex polymer and the second crosslinkable functional end group of the polyurethane dispersion self-crosslink at low temperature upon coalescence, and the waterborne coating composition further comprises a crosslinker.
15. The composition of ~~claim 14~~ claim 14, wherein the crosslinker comprises between about 0.5 and 20 weight percent of the coating composition.

## REPLACEMENT SHEET

16. The composition of ~~claim 1~~ claim 14, wherein the ~~composition comprises a~~ crosslinker is selected from the group consisting of: polyamines, dihydrazides, diacetones, acetoacetoxyl ~~groups~~ compounds, and combinations thereof.

17. The composition of claim 1, wherein the coating composition further comprises adjuvants selected from the group consisting of: pigments, cosolvents, wetting agents, UV stabilizers, pH control agents, viscosity control agents, flow control agents, leveling agents, biocides, and combinations thereof.

18. The composition of claim 1, wherein the first and second functional groups are separated in separated phases of a dispersion.

19. The composition of claim 1, wherein the coating composition is available in a one-pack composition.

20. ~~The A composition, comprising of claim 1, wherein the coating composition comprises:~~

about 10 to 90 weight percent vinyl addition latex polymer having a first crosslinkable functional group, wherein the vinyl addition latex polymer has an acid number of between about 10 to 60;

about 10 to 90 weight percent polyurethane dispersion having a second crosslinkable functional end group; and

about 1 to 20 weight percent crosslinker; and

wherein the composition is in the form of a waterborne coating composition, the first crosslinkable functional group of the vinyl addition latex polymer and the second crosslinkable functional end group of the polyurethane dispersion self-crosslink at low temperature upon coalescence and the coating composition is essentially formaldehyde free.

21. An article, comprising:

a substrate; and

a coating on the substrate, wherein the coating is a coalesced film made from a coating composition comprising:

a vinyl addition latex polymer having a first crosslinkable functional group;

## REPLACEMENT SHEET

a polyurethane dispersion having a second crosslinkable functional end group; and a crosslinker,

wherein the coating composition is in the form of a waterborne coating composition, and wherein the coating composition is crosslinkable at low temperature upon coalescence.

22. The article of claim 21, wherein the substrate is selected from the group consisting of: wood, metals, plastics, ceramics and paper products.

23. The article of claim 21, wherein the substrate is wood.

24. A method of coating a substrate, comprising the steps of:  
providing a coating composition comprising:

a vinyl addition latex polymer having a first crosslinkable functional group;  
a polyurethane dispersion having a second crosslinkable functional end  
group comprising an acetoacetoxyl, diacetone, amine or hydrazide group or  
combination thereof; and

water;

coalescing the coating composition at a low temperature to form a coating coating;  
and

crosslinking the coating composition,

wherein the coating composition is essentially formaldehyde free.

25. The method of claim 24, wherein the coalescing of the coating composition is accomplished at a temperature between about 15 and 90 °C.

26. The method of claim 24, wherein the coalescing of the coating composition is accomplished at a temperature between about 20 and 70 °C.

27. The method of claim 24, wherein the coalescing of the coating composition is accomplished at a temperature between about 20 and 50 °C.